

PATENT COOPERATION TREATY

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INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

(Chapter II of the Patent Cooperation Treaty)

(PCT Article 36 and Rule 70)

Applicant's or agent's file reference TP 1432-WO		FOR FURTHER ACTION See Form PCT/IPEA/416	
International application No. PCT/SE 2003/000181	International filing date (day/month/year) 03.02.2003	Priority date (day/month/year) 12.02.2002	
International Patent Classification (IPC) or national classification and IPC B29C 65/08, B65B 51/22, B06B 3/00			
Applicant TETRA LAVAL HOLDINGS & FINANCE S.A. et al			

- This report is the international preliminary examination report, established by this International Preliminary Examining Authority under Article 35 and transmitted to the applicant according to Article 36.
- This REPORT consists of a total of 5 sheets, including this cover sheet.
- This report is also accompanied by ANNEXES, comprising:
 - ☐ (sent to the applicant and to the International Bureau) a total of _____ sheets, as follows:
 - ☐ sheets of the description, claims and/or drawings which have been amended and are the basis of this report and/or sheets containing rectifications authorized by this Authority (see Rule 70.16 and Section 607 of the Administrative Instructions).
 - ☐ sheets which supersede earlier sheets, but which this Authority considers contain an amendment that goes beyond the disclosure in the international application as filed, as indicated in item 4 of Box No. I and the Supplemental Box.
 - ☐ (sent to the International Bureau only) a total of (indicate type and number of electronic carrier(s)) _____, containing a sequence listing and/or tables related thereto, in computer readable form only, as indicated in the Supplemental Box Relating to Sequence Listing (see Section 802 of the Administrative Instructions).

- This report contains indications relating to the following items:

- | | | |
|-------------------------------------|--------------|---|
| <input checked="" type="checkbox"/> | Box No. I | Basis of the report |
| <input type="checkbox"/> | Box No. II | Priority |
| <input type="checkbox"/> | Box No. III | Non-establishment of opinion with regard to novelty, inventive step and industrial applicability |
| <input type="checkbox"/> | Box No. IV | Lack of unity of invention |
| <input checked="" type="checkbox"/> | Box No. V | Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability, citations and explanations supporting such statement |
| <input type="checkbox"/> | Box No. VI | Certain documents cited |
| <input type="checkbox"/> | Box No. VII | Certain defects in the international application |
| <input checked="" type="checkbox"/> | Box No. VIII | Certain observations on the international application |

Date of submission of the demand 18.08.2003	Date of completion of this report 19.04.2004
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Form PCT/IPEA/409 (cover sheet) (January 2004)

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

PCT/SE 2003/000181

Box No. I Basis of the report

1. With regard to the language, this report is based on the international application in the language in which it was filed, unless otherwise indicated under this item.

☒ This report is based on a translation from the original language into the following language English, which is the language of a translation furnished for the purposes of:

- ☐ international search (under Rules 12.3 and 23.1(b))
☒ publication of the international application (under Rule 12.4)
☐ international preliminary examination (under Rules 55.2 and/or 55.3)

2. With regard to the elements of the international application, this report is based on *(replacement sheets which have been furnished to the receiving Office in response to an invitation under Article 14 are referred to in this report as "originally filed" and are not annexed to this report):*

☒ the international application as originally filed/furnished

☐ the description:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the claims:

pages _____ as originally filed/furnished

pages* _____ as amended (together with any statement) under Article 19

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ the drawings:

pages _____ as originally filed/furnished

pages* _____ received by this Authority on _____

pages* _____ received by this Authority on _____

☐ a sequence listing and/or any related table(s) – see Supplemental Box Relating to Sequence Listing.

3. ☐ The amendments have resulted in the cancellation of:

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

4. ☐ This report has been established as if (some of) the amendments annexed to this report and listed below had not been made, since they have been considered to go beyond the disclosure as filed, as indicated in the Supplemental Box (Rule 70.2(c)).

☐ the description, pages _____

☐ the claims, Nos. _____

☐ the drawings, sheets/figs _____

☐ the sequence listing (*specify*): _____

☐ any table(s) related to the sequence listing (*specify*): _____

* If item 4 applies, some or all of those sheets may be marked "superseded."

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. V Reasoned statement under Article 35(2) with regard to novelty, inventive step or industrial applicability; citations and explanations supporting such statement

1. Statement

Novelty (N)	Claims	<u>1-11</u>	YES
	Claims	_____	NO
Inventive step (IS)	Claims	<u>1-11</u>	YES
	Claims	_____	NO
Industrial applicability (IA)	Claims	<u>1-11</u>	YES
	Claims	_____	NO

2. Citations and explanations (Rule 70.7)

Documents cited in the International Search Report:

D1: GB 2344487 A
D2: US 5879364 A
D3: US 2001027987 A1
D4: US 4651043 A
D5: US 5110403 A
D6: EP 0748660 A1

The cited document GB 2344487 (D1) is considered to be the closest prior art.

Claim 1

D1 describes an ultrasound horn comprising a fixing section (12), a sealing section (13), and a transfer section (e.g. 14) extending there between (see figures 2-6 and page 5, lines 9-22). The ultrasound horn comprises at least two elongated recesses (e.g. 22, 80 or 84), which are formed in the transfer section, extending in a direction (20) between the fixing section and the sealing section.

.../...

Supplemental Box

In case the space in any of the preceding boxes is not sufficient.

Continuation of: Box V

According to an embodiment of D1 (see figure 25), the recess has parallel walls in the middle part (80). In the end parts (81) the recess tapers linearly and at the end (82) it is rounded off. According to another embodiment of D1 (see figure 26), the recess is tapered biconvexly already at the middle part (84) and at the end (85) it is rounded off (see page 8, lines 13-17). Thus, the convexly tapered part (84) has one radius of curvature on each side of an imagined centreline along the recess, while the end part (85) has another (a third) radius of curvature.

What differs between claim 1 and D1 is that, according to the invention, the rounding-off part, at the end of the recess, shall consist of three parts, each with a radius of curvature. This implies that the tensions in the material are reduced and thus prevent fatigue failure.

In D1, the problems concerning tensions in the material are not mentioned, or hinted at. Therefore, a person skilled in the art would not make constructional changes to solve these problems. Further, to solve problems concerning fatigue failure where a recess is involved, involves using greater radiuses in the known art. According to the invention, smaller radiuses are used when introducing three radiuses of curvature.

Therefore, the invention according to independent claim 1 is not considered to be obvious to the skilled person and thus it has inventive step.

The invention according to claims 2-11 is also novel and has inventive step. The invention is industrially applicable.

Documents D2-D6 only represent the general state of the art.

INTERNATIONAL PRELIMINARY REPORT ON PATENTABILITY

International application No.

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Box No. VIII Certain observations on the international application

The following observations on the clarity of the claims, description, and drawings or on the question whether the claims are fully supported by the description, are made:

Claims 6 and 7 are identical.